

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently amended) An input/output management system for managing input or output from or to a disk device connected to a computer, comprising:
 - a connection information definition block in which the relationship of logical connection between said computer and a logical volume included in said disk device or a logical area in a logical volume is defined; and
 - an input/output execution control block that controls, based on the definition, whether said computer can access a logical volume included in said disk device or a logical area in a logical volume,

wherein said connection information definition block includes a logical volume connection information specification division in which a connected state value concerning the connection of said computer is specified in relation to each logical volume included in said disk device or each logical area in each logical volume included in said disk device, said connected state value being a numerical value ranging between a minimum value and a maximum value, said maximum value signifying that said computer is fully connected, said minimum value signifying that said computer is fully disconnected, an intermediate value between said maximum value and said minimum value signifying a conditionally connected state for said computer.

2. (Currently amended) An input/output management system for managing input or output from or to a disk device connected to a plurality of computers, comprising:
 - a connection information definition block in which the relationship of logical connection between each of said computers and a logical volume included in said disk device or a logical area in a logical volume is defined using computer identification information; and

an input/output execution control block that controls, based on the definition, whether each of said computers can access a logical volume included in said disk device or a logical area in a logical volume,

wherein said connection information definition block includes a logical volume connection information specification division in which a connected state value concerning the connection of said computer is specified in relation to each logical volume included in said disk device or each logical area in each logical volume included in said disk device, said connected state value being a numerical value ranging between a minimum value and a maximum value, said maximum value signifying that said computer is fully connected, said minimum value signifying that said computer is fully disconnected, an intermediate value between said maximum value and said minimum value signifying a conditionally connected state for said computer.

3. (Previously presented) An input/output management system according to Claim 1, wherein said connection information definition block comprises:

a computer identification information definition division in which physical identification information that uniquely indicates said computer connected to said disk device is defined.

4. (Previously presented) An input/output management system for managing input or output from or to a disk device connected to a computer according to Claim 1, wherein said connection information definition block comprises:

a computer identification information definition division in which the relationship of logical connection between said computer and a logical area in a logical volume included in said disk device is defined using computer identification information.

5. (Original) An input/output management system according to Claim 4, wherein

said computer includes a plurality of logical computers,

computer identification information concerning each of said logical computers is specified in said computer identification information definition division, and

said input/output execution control block controls whether each of said logical computers that share the same physical input/output path can access a logical area in a logical volume included in said disk device.

6. (Previously presented) An input/output management system according to Claim 1, wherein said connection information definition block comprises:

a computer identification information definition division in which the relationship of logical connection between said computer and a logical volume included in said disk device is defined using port numbers assigned to the ports of said disk device connected to said computer.

7. (Previously presented) An input/output management system for managing input or output from or to a disk device connected to a computer according to Claim 1,

wherein the definition is used to control whether each of a plurality of application programs running in said computer can access a logical volume included in said disk device or a logical area in a logical volume.

8. (Original) An input/output management system according to Claim 7, further comprising a schedule definition division in which a plurality of pieces of computer identification information that defines whether said computer or each of said application programs can access a logical volume included in said disk device or a logical area in a logical volume is specified in relation to respective time zones, and in which a schedule for automatically changing the plurality of pieces of computer identification information is predefined.

9. (Currently amended) An input/output management method for managing input or output from or to a disk device connected to a computer, comprising the steps of:

defining the relationship of logical connection between said computer and a logical volume included in said disk device or a logical area in a logical volume; and
controlling, based on the definition, whether said computer can access a logical volume included in said disk device or a logical area in a logical volume,

wherein said connection information definition block includes a logical volume connection information specification division in which a connected state value concerning the connection of said computer is specified in relation to each logical volume included in said disk device or each logical area in each logical volume included in said disk device, said connected state value being a numerical value ranging between a minimum value and a maximum value, said maximum value signifying that said computer is fully connected, said minimum value signifying that said computer is fully disconnected, an intermediate value between said maximum value and said minimum value signifying a conditionally connected state for said computer.

10. (Previously presented) An input/output management method according to Claim 9,

wherein the definition of the relationship of connection contains physical identification information that uniquely indicates said computer connected to said disk device.

11. (Currently amended) An input/output management method for managing input or output from or to a disk device connected to a computer, comprising the steps of:

defining, based on computer identification information and logical volume connection information, the relationship of logical connection between said computer and a logical volume included in said disk device or a logical area in a logical volume; and

controlling, based on the definition, whether said computer can access a logical area in a logical volume included in said disk device,

wherein said connection information definition block includes a logical volume connection information specification division in which a connected state value concerning the connection of said computer is specified in relation to each logical volume included in said disk

device or each logical area in each logical volume included in said disk device, said connected state value being a numerical value ranging between a minimum value and a maximum value, said maximum value signifying that said computer is fully connected, said minimum value signifying that said computer is fully disconnected, an intermediate value between said maximum value and said minimum value signifying a conditionally connected state for said computer.

12. (Previously presented) An input/output management method according to Claim 9, wherein whether each of a plurality of application programs running in said computer can access a logical volume included in said disk device or a logical area in a logical volume is controlled.

13. (Previously presented) An input/output management method according to Claim 11, wherein a plurality of pieces of definition information that defines whether said computer or each of a plurality of application programs running in said computer can access a logical volume included in said disk device or a logical area in a logical volume is automatically switched with the start of each of time zones according to a predefined schedule.

14. (Previously presented) An input/output management method according to Claim 10,

wherein definition information that defines whether said computer or each of a plurality of application programs running in said computer can access a logical volume included in said disk device or a logical area in a logical volume is automatically modified with a system failure occurring in said connected computer as a trigger.

15. (Currently amended) A computer-readable storage medium including a disk control program for executing a method of processing information based on which input or output from or to a disk device connected to a computer is managed, wherein said disk control program comprises:

code for defining the relationship of logical connection between said computer and a logical volume included in said disk device or a logical area in a logical volume on the basis of both physical identification information that uniquely indicates said computer connected to said disk device, and logical volume connection information that contains a connected state value concerning the connection of said computer to each logical volume included in said disk device or each logical area in each logical volume; and

code for controlling, based on the definition, whether said computer can access a logical volume included in said disk device or a logical area in a logical volume,

wherein said connected state value is a numerical value that ranges between a minimum value and a maximum value, said maximum value signifying that said computer is fully connected, said minimum value signifying that said computer is fully disconnected, an intermediate value between said maximum value and said minimum value signifying a conditionally connected state for said computer.

16. (Previously presented) An input/output management system according to Claim 1, wherein if said connected state value is an intermediate value, then:

if an access key is not appended to an input/output request issued by said computer, said computer is treated as fully disconnected;

if an access key is appended to an input/output request issued by said computer and if said access key is larger than said connected state value, input/output for said input/output request is disabled; and

if an access key is appended to an input/output request issued by said computer and if said access key is equal to or smaller than said connected state value, input/output for said input/output request is enabled.

17. (Previously presented) An input/output management system according to Claim 2, wherein if said connected state value is an intermediate value, then:

if an access key is not appended to an input/output request issued by said computer, said computer is treated as fully disconnected;

if an access key is appended to an input/output request issued by said computer and if said access key is larger than said connected state value, input/output for said input/output request is disabled; and

if an access key is appended to an input/output request issued by said computer and if said access key is equal to or smaller than said connected state value, input/output for said input/output request is enabled.

18. (Previously presented) An input/output management method according to Claim 9, wherein if said connected state value is an intermediate value, then:

if an access key is not appended to an input/output request issued by said computer, said computer is treated as fully disconnected;

if an access key is appended to an input/output request issued by said computer and if said access key is larger than said connected state value, input/output for said input/output request is disabled; and

if an access key is appended to an input/output request issued by said computer and if said access key is equal to or smaller than said connected state value, input/output for said input/output request is enabled.

19. (Previously presented) An input/output management method according to Claim 11, wherein if said connected state value is an intermediate value, then:

if an access key is not appended to an input/output request issued by said computer, said computer is treated as fully disconnected;

if an access key is appended to an input/output request issued by said computer and if said access key is larger than said connected state value, input/output for said input/output request is disabled; and

if an access key is appended to an input/output request issued by said computer and if said access key is equal to or smaller than said connected state value, input/output for said input/output request is enabled.

20. (Previously presented) A computer-readable storage medium according to Claim 15, wherein if said connected state value is an intermediate value, then:

if an access key is not appended to an input/output request issued by said computer, said computer is treated as fully disconnected;

if an access key is appended to an input/output request issued by said computer and if said access key is larger than said connected state value, input/output for said input/output request is disabled; and

if an access key is appended to an input/output request issued by said computer and if said access key is equal to or smaller than said connected state value, input/output for said input/output request is enabled.